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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/452,367	11/30/1999	DANIEL G. SCHWEIKERT	P-3790	1232

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EXAMINER

MITCHELL, JAMES M

ART UNIT

PAPER NUMBER

2827

DATE MAILED: 04/26/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/452,367

Applicant(s)

SCHWEIKERT ET AL.

Examiner

James Mitchell

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 September 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 7-15, 17-22, 24-34 is/are rejected.
- 7) ☒ Claim(s) 6, 16 and 23 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

1. This office action is in response to the supplemental papers filed September 21, 2000.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claim 2 is rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. There is no support in the written description for the first shield line and signal lines to be a part of a single conductor layer, the description indicates that it is the first and second shield lines that are a part of a single conductor (Page 5, Lines 20-22).

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claim 3 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is ambiguous as to how the shield lines "are each in a

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different conductor layer". The shield lines comprise a conducting layer; as such they are not "in a conductor layer".

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1, 3-5, 7-10 and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Hiroshi (JP 4-313300).

9. Hiroshi (Fig 1) discloses a structure comprising a first (3) and a second signal line (3) above a substrate (2a) with a first inherent shield line (4; Abstract Constitution Lines 6-7) that is grounded and positioned between but separated from said first and second line (Abstract Purpose Line 2) in an unused substrate surface area, said shielding line electrically floating (via wire being in an electrical "zero" state due to grounding), said first shield line has an area sufficient to prevent said first shield line from causing capacitive coupling between said first signal line and said second signal line to be greater than if said first shield line was not present (inherent in the purpose of the shield line, which is to lower capacitive coupling), said first shield line, said second signal line and said first shield line are each in a different conductor layer (as interpreted to mean non attached conductive layers; Abstract Purpose, Line 2) said second shield line electrically connected to said first shield line (via through holes 7 and shielding layers 6), and said first shield line is a part of a first conductor layer and said second

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shield layer is part of a second conductor layer, wherein said via ("through hole", 7) is provided at a natural intersection of said first shield line and second shield line (as shown in Fig 1).

10. Claims 21,22 and 24 are rejected under 35 U.S.C. 102(b) as being anticipated by Allen (U.S 5,135,889).

11. Allen (Column 6, Lines 28-51) discloses forming a first and second signal line (Column 4, Lines 53-54) above a substrate and forming a shield line positioned between but separated from said first and second signal line, and said first shield line being electrically floating ("grounded") and electrically connected to a second shield line (via grounded substrate; Column 3, Lines 56-57).

12. Claims 25-27,30-34 are rejected under 35 U.S.C. 102(b) as being anticipated by Crowder et al. (U.S 5,446,243).

13. Crowder (Abstract Lines 1-2 and 8-16) discloses a method of forming a signal line layout comprising a plurality of signal lines, defining any area of said signal line layout which is not one of said plurality of signal lines as unused area, and defining at least one shield line in said unused area, such that said at least one shield line is defined as a first portion (via channel; Column 3, Lines 24-25) that inherently is "at least equal to the minimum distance allowable" between features away from any one of said lines and that has a line width at least equal to the minimum distance allowable between features away from any one of said signal lines, and that has a line width that's inherently at least equal to the minimum allowable width of a feature, wherein at least one shield line is grounded (Column 3, Lines 33-35), and a first shield line is connected

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to a second shield line (shown in Fig 6, Item 606; Column 3, Line 57), at least a first shield line is a part of a first conductor layer (defined as a first layer portion filling a first channel and via) and second shield line is a second conductor layer (defined as the second layer portion filling the second channel and second via), wherein said first shield line is electrically connected to said second shield line by an electrically conductive via provided at a natural intersection of said first shield line and second shield line (shown in Fig 5, Item 504; Column 2, Lines 22-25).

Claim Rejections - 35 USC § 103

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

15. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

16. Claims 11-14, 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hiroshi.

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17. Hiroshi discloses the elements stated in paragraph 9 and further discloses a first shield line that inherently has a first and second portion (inherently a conductive layer is comprised of multiple contiguous layers comprising a 1st, 2nd, etc. portion).

18. Hiroshi does not appear to disclose the distance between the first and said second signal line, that the first shield line has a width greater than the minimum allowable width of a feature, or that the width of the first portion is greater said second portion.

19. However, it would have been an obvious matter of design choice bounded by well known manufacturing constraints and ascertainable by routine experimentation and optimization to choose these particular dimensions because applicant has not disclosed that the dimensions are for a particular unobvious purpose, produce an unexpected result, or are otherwise critical, and it appears prima facie that the process would possess utility using another dimension.

20. Indeed, it has been held that mere dimensional limitations are prima facie obvious absent a disclosure that the limitations are for a particular unobvious purpose, produce an unexpected result, or are otherwise critical. See, for example, *In re Rose*, 220 F.2d 459, 105 USPQ 237 (CCPA 1955); *In re Rinehart*, 531 F.2d 1048, 189 USPQ 143 (CCPA 1976); *Gardner v. TEC Systems, Inc.*, 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied, 469 U.S. 830, 225 USPQ 232 (1984); *In re Dailey*, 357 F.2d 669, 149 USPQ 47 (CCPA 1966).

21. Claims 28 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Crowder as applied to claim 26.

22. Crowder does not explicitly disclose that at least one shield line has a width greater than the minimum allowable width of a feature or that at least one shield line has a first portion and a second portion wherein the first portion has a greater width than the second portion, however see paragraphs 19-20.

Allowable Subject Matter

23. Claims 6, 16 and 23 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

24. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Yang (U.S 6,166,440), Ma (U.S 6,022,787), Allen (U.S 5,135,889), Chang et al. (U.S 5,915,201) and Kong et al. (U.S 6,180,430).

The prior art discloses in Yang, Ma and Allen the use of shielding wires to lower capacitive coupling between signal wires, and in Chang and Kong the use of electrically floating metal layers adjacent signal lines.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James Mitchell whose telephone number is (703) 305-0244. The examiner can normally be reached on M-F 10:30-8:00.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David L. Talbott can be reached on (703) 305-9883. The fax phone numbers for the organization where this application or proceeding is assigned are (703)


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305-3432 for regular communications and (703) 305-3230 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.


jmm
April 22, 2002


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